

**UNITED STATES ENVIRONMENTAL PROTECTION AGENCY  
REGION V**

**DATE:** June 26, 2006

**SUBJECT:** Review of Pre-Design Investigation Work Plan  
Operable Unit 2  
Nease Chemical Company

US EPA RECORDS CENTER REGION 5



397179

**FROM:** Dr. Luanne Vanderpool, Geologist  
AADS Section

**TO:** Mary Logan, RPM  
Remedial Response Section 2

I have completed my review of the Pre-Design Investigation (PDI) Work Plan for Operable Unit 2 at Nease Chemical Company Superfund Site. The following are my comments for your consideration. As you have requested I have divided my comments into "Major Comments", "Recommendations", and "Minor Comments". The distinction between major and minor comments is blurry; overall the work plan is pretty good.

**Major Comments**

1. Baseline Sampling, Section 2.1.2, Page 6 and/or Section 3.1.2.1, Page 21  
Needed is identification of all wells to be included in the site wide water level monitoring. On page 6 the text implies that this will be a larger set of monitoring wells than those listed in Table 1 for the baseline chemical monitoring.
2. Baseline Sampling, Section 2.1.2, Page 7 and/or Section 3.1.2.1, Page 21  
The focused DNAPL investigation should include attempting to collect a sample of any DNAPL if is observed in a well and analyzing any resulting sample(s) (both composition and physical properties).
3. Section 3.1.1.1, New Well Installation – Rationale and Locations, Page 19  
The PDI Work Plan asserts that proposed new wells M-VF1/M-VF2 will be downgradient of D-8, S-17, G-UBA and S-19. According to Figures 4 and 5, interpreted groundwater contours for the overburden unit and for bedrock/ buried valley, the proposed well nest is not downgradient of D-8, S-17, G-UBA and S-19. A well nest is needed in the buried bedrock valley, however more certainty is needed that the new well nest is located in the flow path of the MKS plume. Shifting the location of M-VF1/M-VF2 further south would increase confidence considerably that the nest is monitoring the MKS plume.
4. New Well Installation – Rationale and Locations, Page 19  
The PDI Work Plan proposes to decommission Monitoring Well S-19. While it is

acceptable to decommission S-19, it should be replaced. Proposed new well pair M-VF1/M-VF2 and the existing D well cluster are not sufficient substitutes for S-19.

5. Section 3.1.1.2, Procedures for Installation and Development of Wells, Page 20 and Section 3.4.2.2, NZVI Field Study, Page 51  
Well development should include both purging and surging (cycles of surging and purging). Documentation is important. A form such the Record of Well Development illustrated in Figure 8.1 of OEPA's Technical Guidance (Chapter 8) should be used and water quality parameters (including turbidity measured in NTU units) should be recorded and development continued until parameters stabilize.
6. Section 3.4.2.2, Field NZVI Field Study, Page 49 and 50  
Will the field study be able to differentiate between NZVI not reaching well NZVI-3 and NZVI reaching but not working at NZVI-3? Clarification is need on how extent of influence will be accessed..

#### Recommendations

7. Section 2.1.1, New Well Installation, Page 5  
I suggest adding to this text that new wells S-20 and S-21 will be shallow overburden wells.
8. Section 3.1.5.1, In-Situ Trench Hydraulic Testing – Rationale and Locations, Page 31  
I suggest adding text explaining and clarifying what criteria will be used to determine that there is “sufficient drawdown in the overburden to assure hydraulic capture” as is mentioned in the last sentence of this section.
9. Section 3.4.2.2, NZVI Field Study, Page 49  
I suggest making the description of the locations of the new NZVI monitoring wells more explicit. Figure 3 shows NZVI-1 15 feet downgradient of PZ-6B-U, NZVI-2 30 feet downgradient of PZ-6B-U and NZVI-3 offset 10 feet transverse from NZVI-1. Clarity would be improved if the text would include this information as well.

#### Minor Comments

10. Section 3.1.1.2, Procedures for Installation and Development of Wells, Page 20  
In the first paragraph it is stated that the depth, length of screen and final well construction details will be determined in the field. What are the field conditions that control the screen depth and length and might result in modifying screen depth and length from that specified in the PDI Work Plan.
11. Section 3.1.5.1, Page 30, Footnote 6  
The cited section should be 3.1.1.2, not 3.1.2.1.
12. Section 3.1.5.1, In-Situ Trench Hydraulic Testing – Rationale and Locations, Page 30-31  
The text mentions and Figure 3 shows a piezometer to be located downgradient of the

trench. The first full paragraph on page 31 states that potentiometric levels will be monitored within the trench and upgradient and side gradient of the trench. Won't water levels be monitored in the downgradient piezometer as well?

13. Section 3.4.2.1, NZVI Pilot Studies – Preliminary Bench Studies, Page 48  
It is stated in the footnote that previously obtained rock cores will be used. Are these cores from PZ-6B-U or elsewhere on the site?
14. Section 3.4.2.1, NZVI Pilot Studies – Preliminary Bench Studies, Page 48  
In the second full paragraph, rather than simply stating that laboratory samples will be analyzed for “selected VOCs” and “selected geochemical indicators” and generally referencing Section 2.4.2, there needs to be a listing (table?) of parameters to be analyzed for during the pilot testing. Rather than simply stating that sample analyses will be conducted “at various time intervals”, either the text should specify the intervals or give the basis for determining when to sample.
15. Section 3.4.2.2, Field NZVI Field Study, Page 49  
Which geochemical parameters are to be monitored continuously by downhole dataloggers during the NZVI field study? Will the data loggers be used during injection or during part or all of the post injection phase or both during and post injection?
16. Section 3.4.2.2, Field NZVI Field Study, Page 49 and 50  
For clarity a table is needed that indicates the parameters to be sampled during the various sampling events of the field study (pre- injection, intermediate, final post injection).

I hope these comments are of assistance to you. If you have questions or require further help, please call me at 3-9296.

cc. Steve Padovani